

Application No.: 10/574,783

Docket No. NISHI.0001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Hideki KITAMURA et al :

Serial No.: 10/574,783 : Art Unit: 1794

Filing Date: April 6, 2006 : Examiner: Michael B. Nelson

For: Semiconductive Film, Electric Charge Control Member and Process for Producing
the Semiconductive Film

BOX AMENDMENT

Assistant Commissioner for Patents

Washington, D.C. 20231

DECLARATION UNDER 37 CFR 1.132

Dear Sir:

Yoshikichi TERAMOTO declares that:

1. He earned his B.S. in 1977 in Polymer Physics from Hokkaido University, Hokkaido, Japan and has been employed as an engineer since April, 1977 by the assignee company, Kureha Corporation, and has been engaged in various aspects of research work with respect to the research and development of polymers.

2. He is a co-inventor of the application, is familiar with the present application Serial No. 10/574,783 filed April 6, 2006, is familiar with the Official Action dated October 13, 2009 and the reference cited therein, and

made the Declaration under 37 CFR 1.132.

3. The following experiments were carried out Mr. Kazuyuki SUZUKI, a co-inventor of the application, under Mr. TERAMOTO's direct control and supervision.

Experiment 1:

In a Henschel mixer, 100 parts by weight of poly(ether ether ketone) (product of Victrex Co., trade name "Victrex PEEK 450G") and 18 parts by weight of acetylene black (product of Denki Kagaku Kogyo Kabushiki Kaisha, trade name "Denka Black", volatile matter = 0.03%, DBP oil absorption = 125 ml/100 g, pH = 9) were uniformly dry-blended. The resultant blend was then fed to a twin-screw kneader extruder (PCM-46, manufactured by Ikegai Corp.) having a barrel diameter of 45 mm, kneaded at a cylinder temperature of 260 to 385°C, and melted and extruded, thereby forming pellets.

The pellets were melt-extruded at 395°C from a spiral die having a diameter of 30 mm and a lip clearance of 0.9 mm, and the extrudate was then caused to pass through a cooling mandrel controlled to 33°C to produce a tubular semiconductive film. The result is shown in Table 1.

Experiments 2 to 4:

Tubular semiconductive films were produced in the same manner as in Experiment 1 except that the temperature of the cooling mandrel was changed from 33°C to 70°C, 90°C and 110°C, respectively. The results are shown in Table 1.

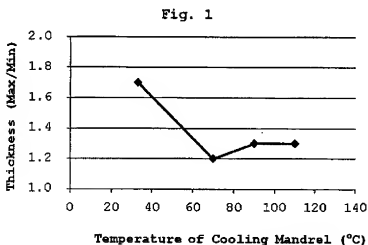
Table 1

| Temperature of Cooling mandrel (°C) | Thickness (μm) | | Volume resistivity (Ωcm) | |
|-------------------------------------|----------------|---------|--------------------------|---------|
| | Average value | Max/min | Average value | Max/min |
| 33 | 57 | 1.7 | 1.4×10^8 | 9.1 |
| 70 | 56 | 1.2 | 8.6×10^7 | 4.7 |
| 90 | 59 | 1.3 | 1.4×10^8 | 5.1 |
| 110 | 58 | 1.3 | 2.1×10^8 | 4.6 |

(Note)

A point in a circumferential direction of a tubular film sample is determined to measure both thickness and volume resistivity at optionally selected 20 points in a machine direction from this point, thereby finding the average value and maximum values/minimum value thereof.

The relationship between the temperature of the cooling mandrel and the value of maximum value/ minimum value of the semiconductive film is illustrated in FIG. 1.



<Consideration>

The experimental results of Table 1 and FIG. 1 show that when the temperature of the cooling mandrel is controlled within the range of 60 to 120°C recited in the present invention, a semiconductive film narrow in scatter of thickness is obtained. On the other hand, it is understood that when the temperature of the cooling mandrel is lowered to 33°C that is a temperature lower than 60°C, the resulting semiconductive film tends to rapidly increase the scatter of thickness.

4. Yoshikichi TERAMOTO declares that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,


Yoshikichi TERAMOTO

February 8, 2010

Date